

Message

From: Fox, Tyler [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=021C57F288DA44738D9DEA325AADAD85-TFOX]
Sent: 5/21/2018 3:21:08 AM
To: (b) (6) @gmail.com; (b) (6) _ @163.com
CC: Jang, Carey [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=31624cb18a5144ce8f506ca40de2f575-Jang, Carey]
Subject: Fox CMAS presentation for 5/22
Attachments: USEPA_Use of Models.pdf; ATT00001.htm; USEPA_Use of Models.pptx; ATT00002.htm

Please find attached my presentation the CMAS-Abacas Conference (pdf and ppt versions).

Thanks, Tyler

Air Quality Modeling for US EPA's Regulatory Applications

Tyler J Fox, USEPA

2018 Joint International Conference on
ABaCAS and CMAS-Asia-Pacific

May 22, 2018

Air Quality Management System

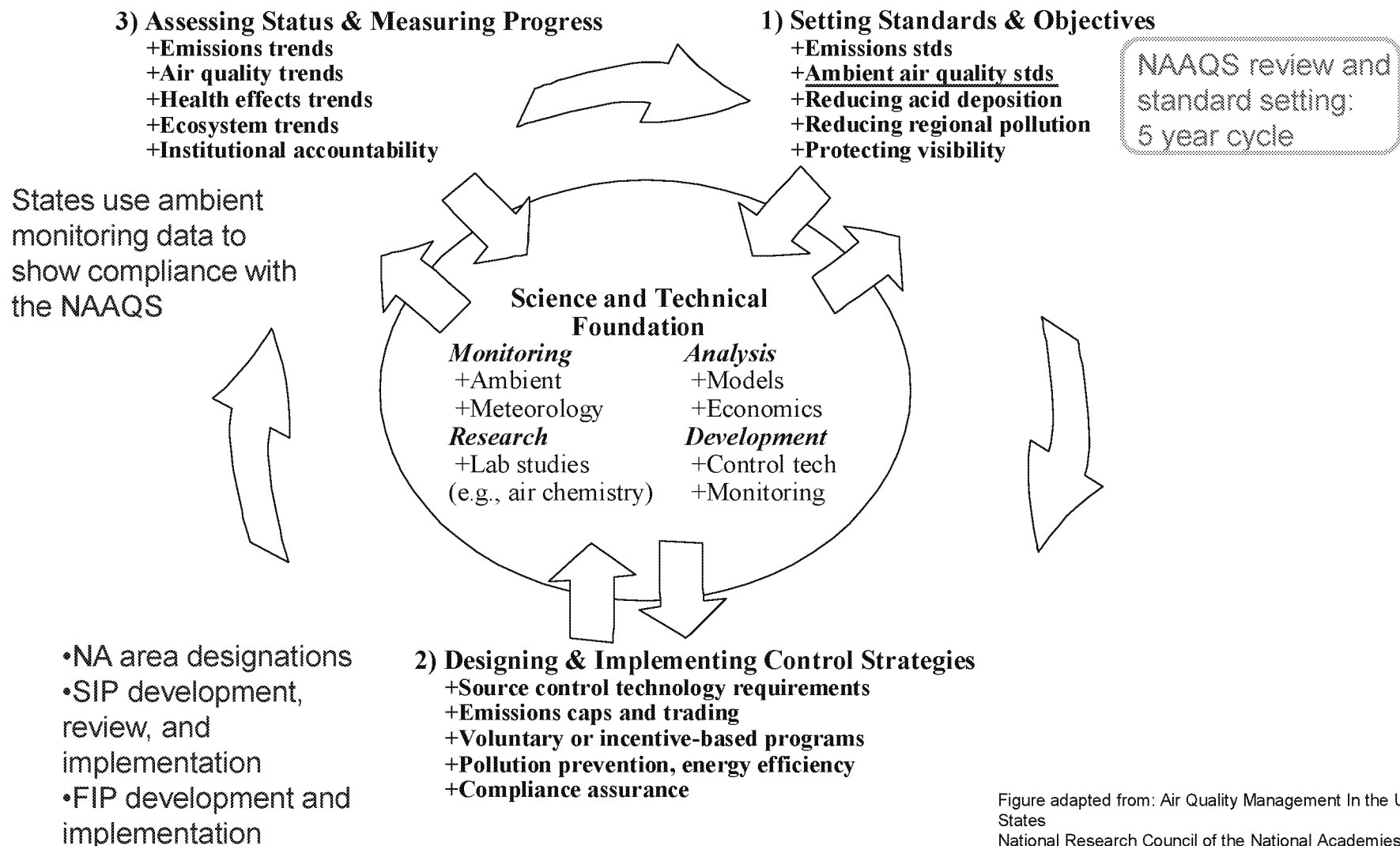


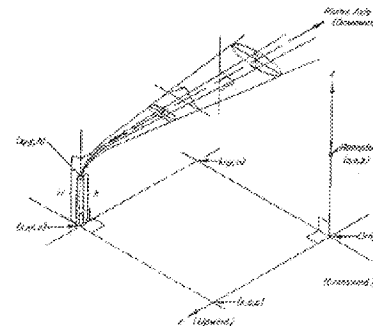
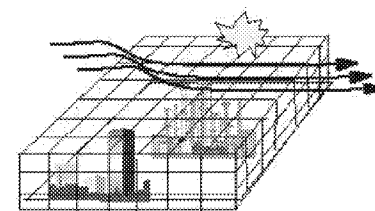
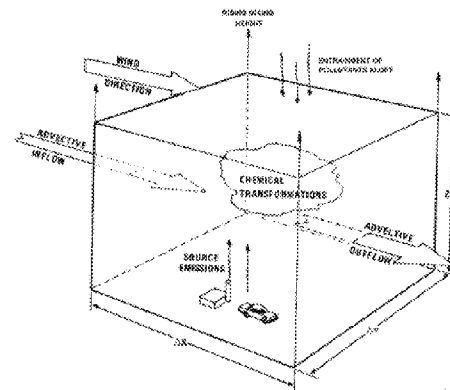
Figure adapted from: Air Quality Management In the United States
National Research Council of the National Academies
National Academies Press, Washington D.C., 2004.



OAR - OAQPS - AQAD

Air Quality Modeling Group

- Conducts air quality modeling for Agency regulatory and policy assessments
 - e.g., NOx SIP Call, Heavy Duty Diesel, Nonroad Rule, CAIR, CAMR, NAAQS RIAs
- Provides guidance for the use of air quality models for SIP demonstrations and NSR/PSD permitting
 - O₃/PM/RH Guidance
 - Guideline on Air Quality Models (aka Appendix W)
- Partners and coordinates w/ others (e.g, ORD, NOAA, scientific community, etc) on model evaluations and development efforts





Why Conduct Air Quality Modeling?

- Legal and Administrative Requirements
 - Clean Air Act and Amendments: Can serve as basis or legal justification for Agency action, e.g., Federal rules to address interstate transport or mobile sources, Federal and state permitting of new/modifying sources.
 - EO 12866 - Regulatory Planning and Review: Provide critical inputs to conduct cost and benefits assessment for 'major' rules
- Inform Policy Development & Implementation
 - NAAQS Risk and Exposure Analysis (REAs): Provides input to assessing exposure and risks of current standard and potential alternatives.
 - NAAQS Regulatory Impact Analysis (RIAs): Provides input to identification of "cost-effective" control measures and to estimate public health benefits for illustrative demonstration of achieving revised standard(s).
 - Provide estimates of contributions to air quality concerns to inform control strategies, e.g., interstate transport, designations, and Regional Haze
 - State Implementation Plans (SIPs): Demonstrate attainment of NAAQS based on controls to be implemented by state/local agencies
- Communication and Outreach
 - Provides answers to the questions of stakeholders and the public about effectiveness and impacts of actions, e.g., future projections of nonattainment and attainment with regulation.



Regulatory/Policy Drivers

- NAAQS—5 year reviews = “All NAAQS all the time!”
 - Standard setting (e.g., risk/exposure analysis and policy assessments for PM, NO_x/SO_x secondary, SO₂, NO₂, O₃)
 - Implementation (e.g., new source permitting, designations, SIPs, and policy development)
- Federal Rulemakings
 - Address interstate transport of O₃ for 2008 and 2015 NAAQS (focus on Eastern US, NO_x)
 - Address transport issues for western states (state-to-state, int’l transport, regional haze)
 - Benefits of OTAQ Rules (e.g., HD-GHG, RFS)
 - Co-benefits of CPP Replacement, MACT/RTR and other sector rules (e.g., refineries, cement, etc)
- Legislative Assessments/Report to Congress
- Communities and Environmental Justice
 - 2014 National Air Toxics Assessment (NATA)
 - Collaborations with public health agencies, e.g., CDC Phase



How are Air Quality Models used in Regulatory Assessments?

- *Project future nonattainment/attainment status of areas*
- *Provide inputs for assessing risk/exposure*
- *Provide inputs for estimating public health benefits*
- *To inform control strategy development*
- *To inform compliance demonstrations for new source permitting & related permit programs*



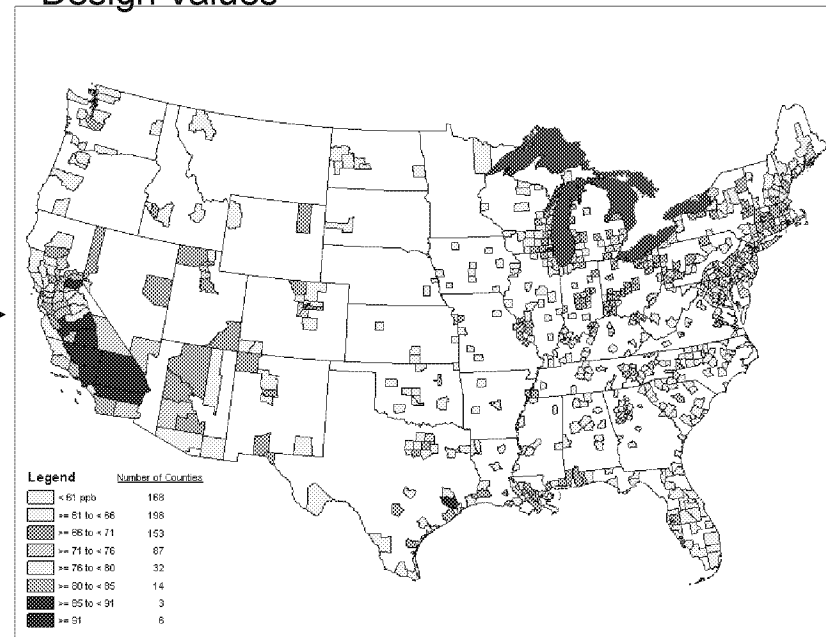
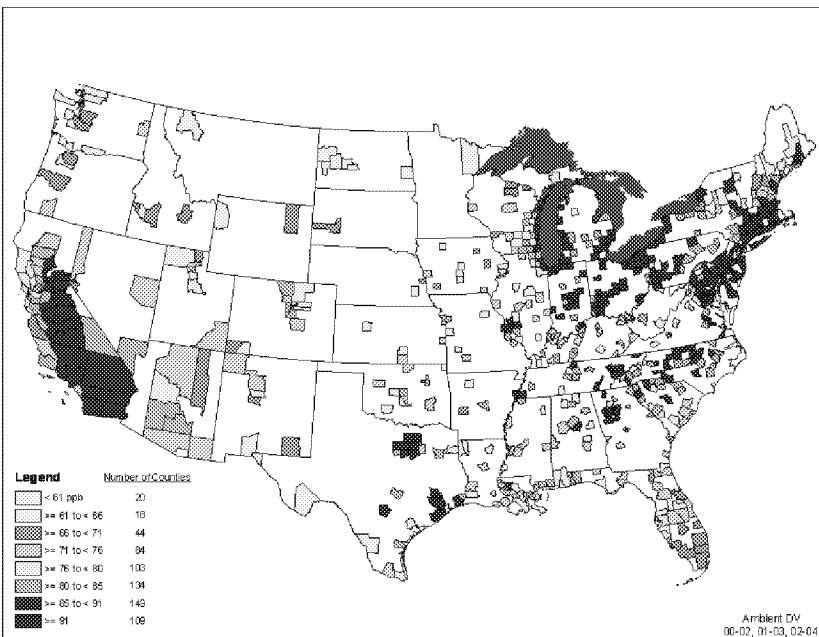
Projecting Future Status of Areas

Example: Current and 2020 Projected 8-Hour Ozone

“Current” Ozone Levels: Average of 8-Hour Ozone Design Values (2000-02, 2001-03, 2002-04)

2020 Base Case Projected 8-Hour Ozone Design Values

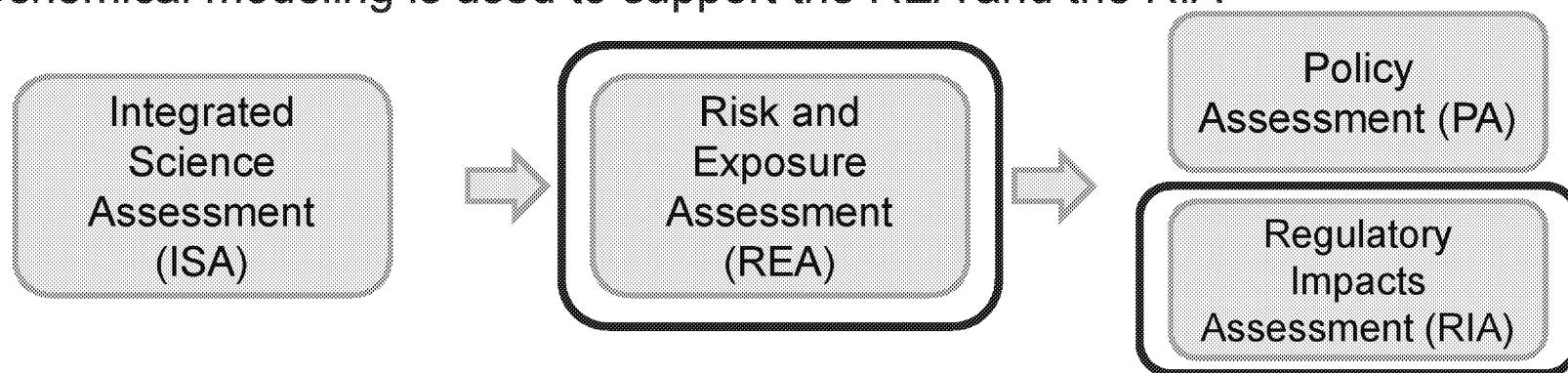
Model
Relative
Response
Factors
(RFFs)





National Ambient Air Quality Standard (NAAQS) Review Process

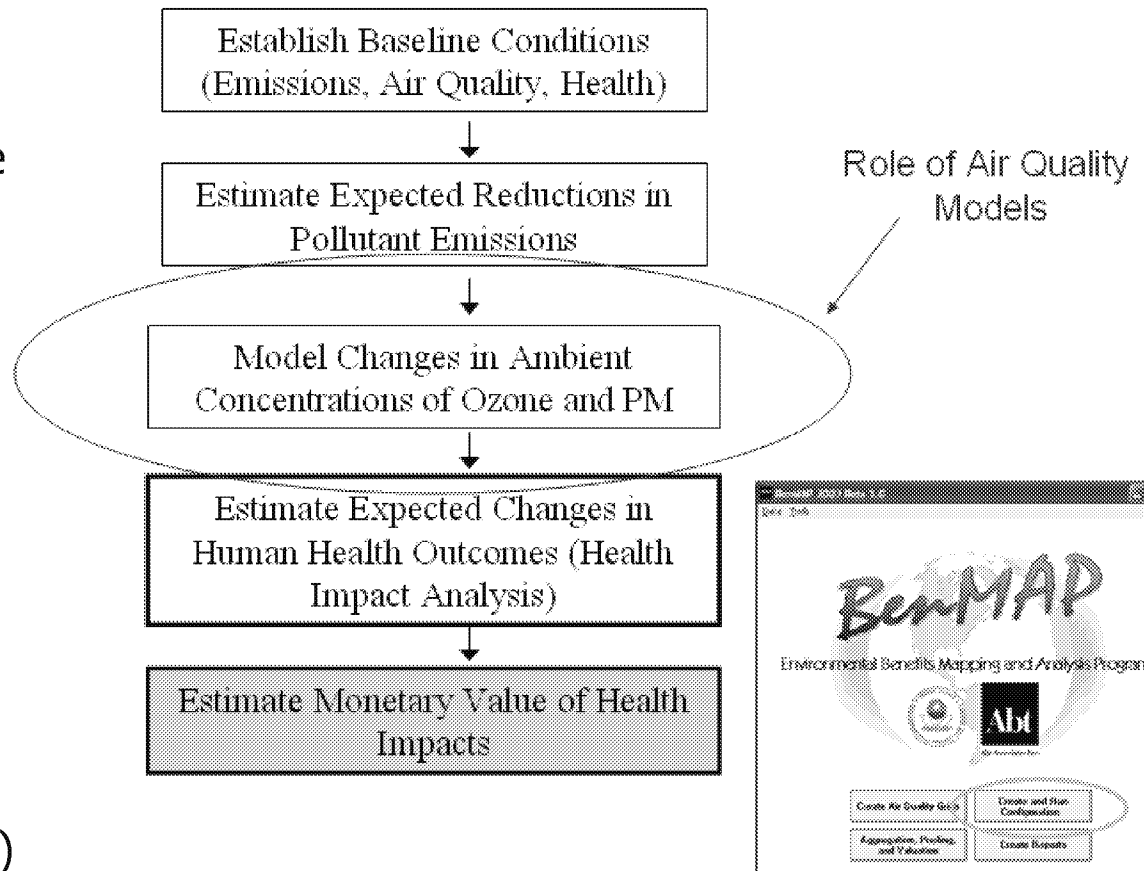
Photochemical modeling is used to support the REA and the RIA



- **ISA:** “comprehensive review, synthesis, and evaluation of the most policy-relevant science”.
- **REA:** “develop[s] quantitative characterizations of exposures and associated risks to human health or the environment associated with recent air quality conditions and with air quality estimated to just meet the current or alternative standard(s) under consideration”
- **PA:** “staff analysis of the scientific basis for alternative policy options for consideration by senior EPA management prior to rulemaking.” Draws on information in the ISA and REA.
- **RIA:** Cost-benefit analysis of the proposed and alternate standards based on “illustrative implementation scenarios” and does not inform the standard setting process.

Providing Inputs to Benefits Analysis

- One of the primary uses of the model outputs are as inputs to the BenMAP model to estimate O₃ & PM_{2.5} health benefits.
- Model outputs are used in a relative sense and need post-processing before being BenMAP ready.
 - Software for the Model Attainment Test (SMAT) for O₃ and PM_{2.5}





How are Air Quality Models or Tools used to Inform Control Strategy Development?

- **Future Base Case/Baseline Modeling**
 - results indicate the location, magnitude, and extent of nonattainment after application of expected control programs
- **Emissions Sensitivity Modeling**
 - indicates on how air quality may respond to additional controls on one or more pollutants
- **Source Apportionment/Tagging and “Zero-out” Modeling**
 - useful for estimating the contribution to pollutant concentrations of individual pollutants and sources (or groups of sources)



New Source Permitting: *Guideline on Air Quality Models*

- The *Guideline on Air Quality Models* (*Guideline* or “Appendix W” to 40 CFR Part 51) is used by the EPA, states, tribes, and industry to prepare and review permits for new sources of air pollution. State and tribal air agencies also use the *Guideline* to revise their plans detailing strategies for reducing emissions and improving air quality known as State or Tribal Implementation Plans
- On December 20, 2016, the EPA . . .
 - finalized several additions and changes to its *Guideline*.
 - released a revised regulatory version of the preferred near-field dispersion model, AERMOD, reflective of the final rule.
- The EPA expects the *Guideline* revisions and associated model enhancements will increase the efficiency and accuracy of regulatory modeling demonstrations.
- Key science research areas:
 - Permit demonstrations for O₃ and secondary PM_{2.5} to use photochemical modeling (emphasis on source sensitivity and source app’t. techniques)
 - AERMOD science improvements: mobile sources (R-LINE) & near-source¹¹ impacts (downwash)



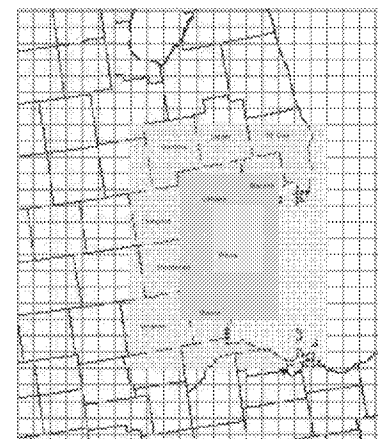
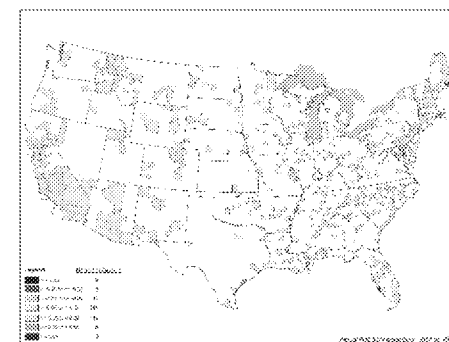
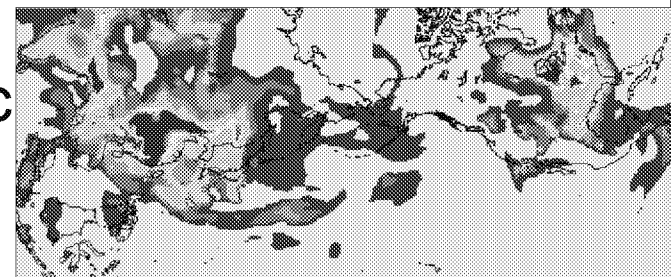
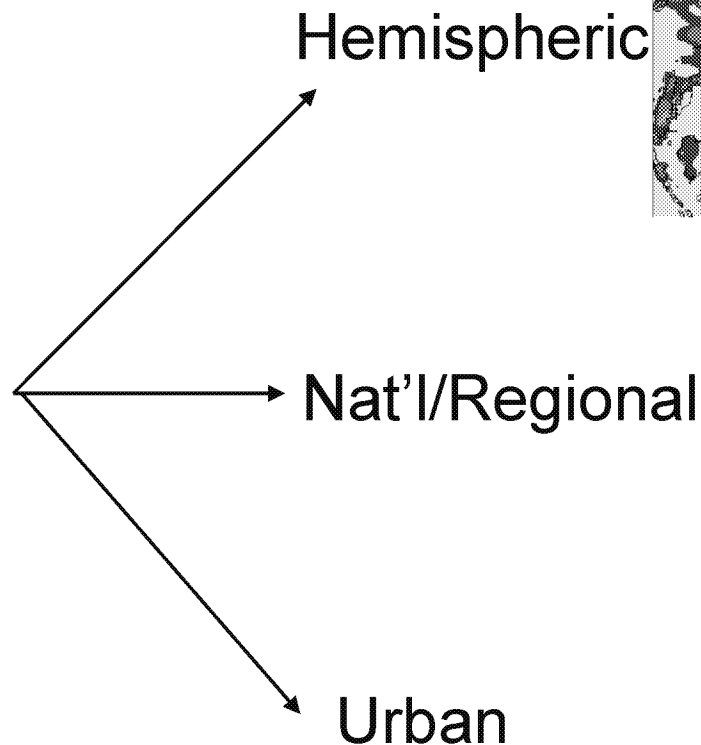
Our Collaborative Partnership

- Scientific improvements:
 - Photochemical model improvements and extensions: Focus on CMAQ as a foundational element of the analytical framework from “multi-scale” perspective
 - Dispersion model science improvements: Focus on AERMOD and related dispersion models
- Embrace model evaluation framework with emphasis on feedback to prioritizing model development efforts
- Broaden CMAQ development, evaluation, and application paradigm to engage community
- Place premium on research and evaluation efforts that are policy relevant for EPA and the regulatory community

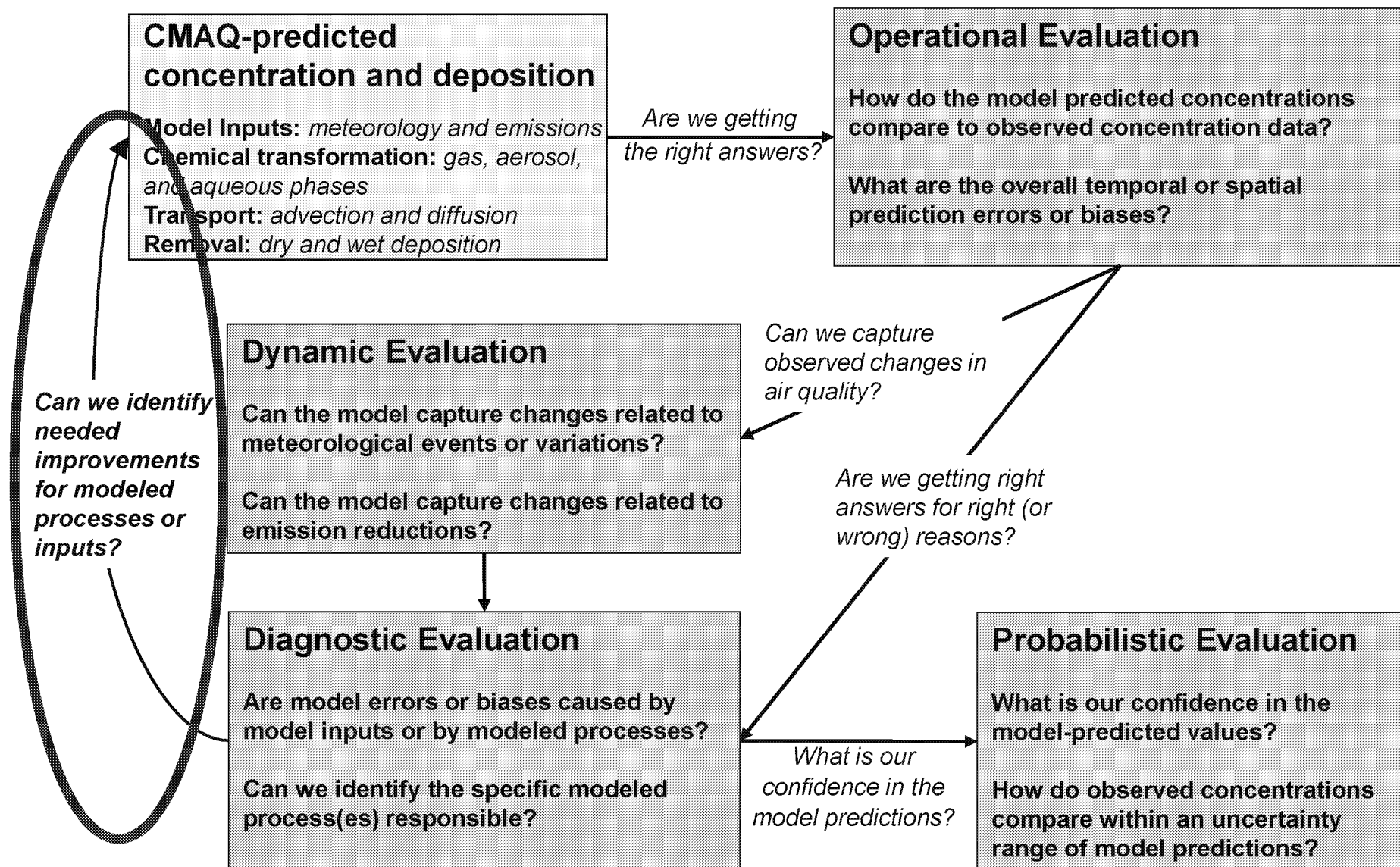
CMAQ at the Core for EPA's Multi-Scale Modeling Efforts

Community
MULTI-SCALE

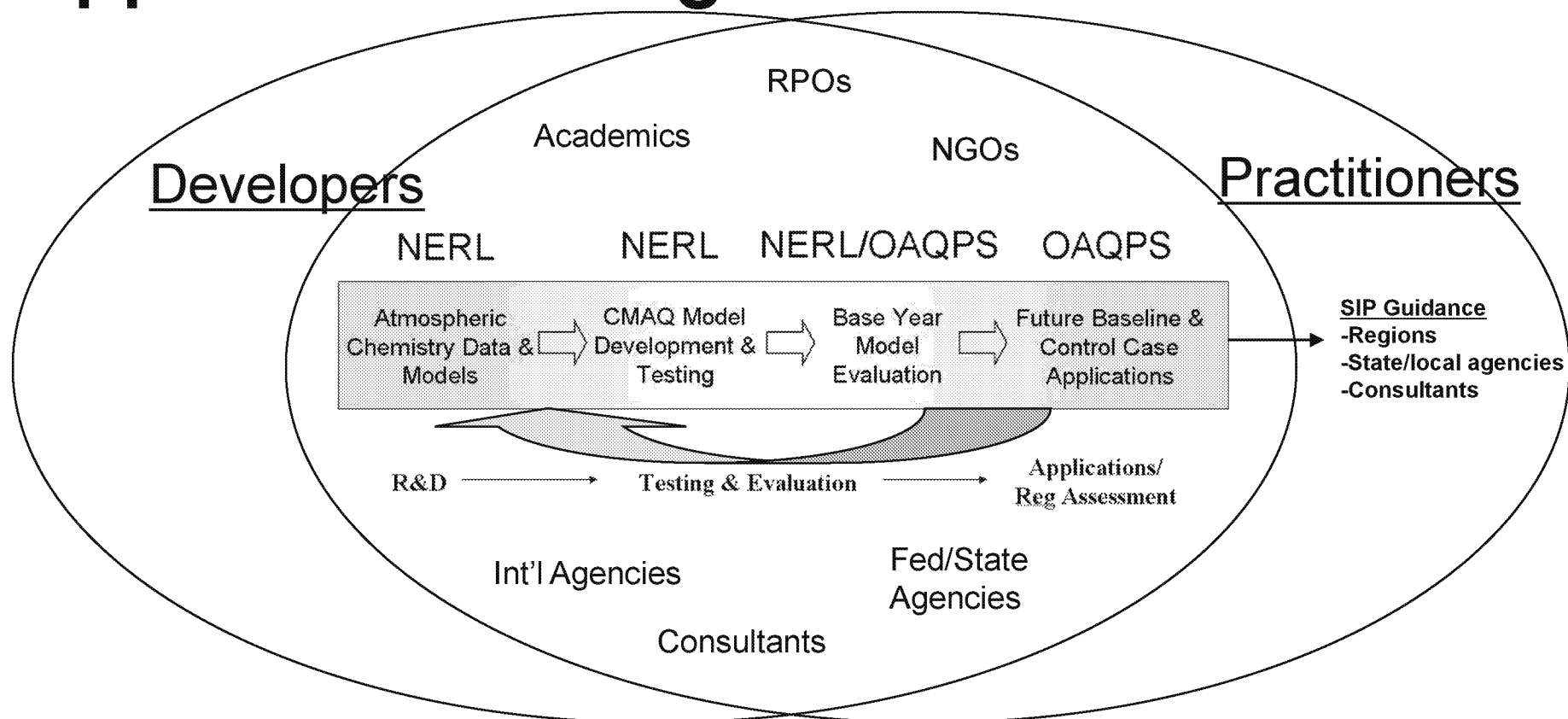
Air Quality
Model



Community Multiscale Air Quality (CMAQ) MODEL EVALUATION FRAMEWORK



CMAQ Development, Evaluation, Application Paradigm



Engage entire community to learn from model evaluation and applications to identify performance issues and direct model development efforts to improve models in policy-relevant areas through independent and collaborative efforts

Message

From: Sasser, Erika [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=477638FE84004800BFDF8E62FE3CAFC8-ESASSER]
Sent: 10/9/2018 8:45:22 PM
To: McKinney, Voronina [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=McKinney, Voronina]; Lessard, Patrick [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=936faef361044e1087b6ca18d92b4cca-Lessard, Pa]
CC: Mozingo, Kristal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=7bfcc69e7d4a45dcb377744ce9065b6b-KMOZINGO]; Fann, Neal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b040a0d5552c40d3a795855b5845c5b4-NFANN]; Wayland, Robertj [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d490f5a1cd21498384c72c7ac7076967-RWAYLAND]; Wesson, Karen [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8f3d5329d4ac4b6a9a424c9759c927d1-KWESSON]; Jenkins, Scott [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b9f9532461ea48a598a84169f7f6ee12-SJENKI04]; Jones, Rhea [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8d213054092e4312bf031a52d13aafb8-RJONES02]
Subject: Materials for 10/10 NAAQS Update meeting with Bill
Attachments: Wehrum benefits briefing September 2018 (Part 2).pptx

Attached please find materials for tomorrow's 12:00 meeting with Bill on NAAQS Update. Please let us know if you have questions.

Thanks

Message

From: Jones, Rhea [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=8D213054092E4312BF031A52D13AAFB8-RJONES02]
on behalf of Sasser, Erika [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=477638FE84004800BFD8E62FE3CAFC8-ESASSER]
Sent: 8/14/2018 1:37:31 PM
To: South, Peter [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=1ead249df78840c9928874ec2ec4f9a6-PSouth]
CC: Sasser, Erika [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=477638fe84004800bfd8e62fe3cafc8-ESASSER]; Wayland, Robertj [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d490f5a1cd21498384c72c7ac7076967-RWAYLAND]; Fann, Neal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b040a0d5552c40d3a795855b5845c5b4-NFANN]
Subject: FW: Estimating Air Quality Benefits
Attachments: Estimating Air Quality Benefits.ics; BenMAP-CE presentation Tsirigotis August 14 2018.pptx

Hi Pete,

The materials we'll use for today's 1:00 meeting with Peter are attached.

Let me know if you have any questions!

Thanks!

Message

From: Keaveny, Brian [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=13AC837699A94966ADB381B8C7C380F9-KEAVENY, BR]
Sent: 5/30/2018 7:30:44 PM
To: Fann, Neal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b040a0d5552c40d3a795855b5845c5b4-NFANN]
CC: Chan, Elizabeth [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8c2d189c5ca846a4b77b094a4e5b18db-Chan, Eliza]; Kamal, Ali [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d4d69c4ba6164976bd8f340c77065f95-Kamal, Ali]
Subject: RE: CPP benefits back-up

Thanks a bunch for working on this Neal! Sorry to pull you in while you're away.

It would be very helpful to chat when you're back in on Friday, so I'll send you a calendar invite. (If I'm wrong about you being back in on Friday, please correct me.)

Thanks again!
- Brian

From: Fann, Neal
Sent: Wednesday, May 30, 2018 1:51 PM
To: Keaveny, Brian <Keaveny.Brian@epa.gov>; Kamal, Ali <Kamal.Ali@epa.gov>
Cc: Chan, Elizabeth <Chan.Elizabeth@epa.gov>
Subject: RE: CPP benefits back-up

Brian and all:

See attached for:

- A link to the "updated benefits upload template" file that contains the new 2030 and 2035 total PM & O3 benefit estimates
- A copy of the CPP Replace PV.xlsx spreadsheet that I used to report the 2030 and 2035 values.
 - Ali, I traced all my formulas and cell references, but would be grateful if you could take a the cell references in the tab marked "PV" and confirm that it's pulling the right data.

Deliberative Process / Ex. 5

I'm in transit this afternoon but will be back online this evening.

-Neal

From: Keaveny, Brian
Sent: Wednesday, May 30, 2018 8:58 AM
To: Kamal, Ali <Kamal.Ali@epa.gov>
Cc: Fann, Neal <Fann.Neal@epa.gov>; Chan, Elizabeth <Chan.Elizabeth@epa.gov>
Subject: RE: CPP benefits back-up

Hi Ali,

Thanks for taking a look at it and getting back to me so quickly. Yes, let's talk later in the morning as planned. I understand that the files that Neal sent to you and Elizabeth on 5/15 match what is in the tables Neal put in the RIA.

Deliberative Process / Ex. 5

From: Kamal, Ali

Sent: Wednesday, May 30, 2018 12:05 AM

To: Keaveny, Brian <Keaveny.Brian@epa.gov>

Cc: Fann, Neal <Fann.Neal@epa.gov>; Chan, Elizabeth <Chan.Elizabeth@epa.gov>

Subject: RE: CPP benefits back-up

Deliberative Process / Ex. 5

From: Keaveny, Brian

Sent: Tuesday, May 29, 2018 9:16 AM

To: Kamal, Ali <Kamal.Ali@epa.gov>

Cc: Fann, Neal <Fann.Neal@epa.gov>; Chan, Elizabeth <Chan.Elizabeth@epa.gov>

Subject: RE: CPP benefits back-up

Deliberative Process / Ex. 5

From: Fann, Neal
Sent: Tuesday, May 15, 2018 10:08 AM
To: Kamal, Ali <Kamal.Ali@epa.gov>; Chan, Elizabeth <Chan.Elizabeth@epa.gov>
Cc: Keaveny, Brian <Keaveny.Brian@epa.gov>; Wayland, Robertj <Wayland.Robertj@epa.gov>
Subject: RE: CPP benefits back-up

Ali and Elizabeth,

Attached to this e-mail you'll find the following files:

- The benefits chapter
- The RIA formatted incidence results
- The RIA formatted value results

The BenMAP-CE output files can be found in the I:\ drive, [here](#).

I think this is everything you'll need while I'm away. We can discuss further tomorrow morning.

Thanks,
Neal

-----Original Appointment-----

From: Fann, Neal
Sent: Tuesday, May 15, 2018 9:27 AM
To: Fann, Neal; Kamal, Ali; Keaveny, Brian; Chan, Elizabeth
Subject: CPP benefits back-up
When: Wednesday, May 16, 2018 9:30 AM-10:00 AM (UTC-05:00) Eastern Time (US & Canada).
Where: RTP-C400C-Max20/RTP-Bldg-C

Brief meeting to ensure that Ali and Elizabeth have everything needed to serve as my backup while I'm away from the office.

Message

From: Fann, Neal [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B040A0D5552C40D3A795855B5845C5B4-NFANN]
Sent: 8/30/2017 5:57:43 PM
To: Chan, Elizabeth [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8c2d189c5ca846a4b77b094a4e5b18db-Chan, Eliza]
Subject: RE: Approach for calculating CPP benefit per-ton estimates

Deliberative Process / Ex. 5

From: Chan, Elizabeth
Sent: Wednesday, August 30, 2017 1:56 PM
To: Fann, Neal <Fann.Neal@epa.gov>
Subject: RE: Approach for calculating CPP benefit per-ton estimates

Hi Neal,

I just read through the CPP memo about choosing an air quality surface

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

From: Fann, Neal
Sent: Wednesday, August 30, 2017 10:55 AM
To: Kamal, Ali <Kamal.Ali@epa.gov>; Chan, Elizabeth <Chan.Elizabeth@epa.gov>; Coffman, Evan <Coffman.Evan@epa.gov>
Cc: Davidson, Ken <Davidson.Ken@epa.gov>; Jenkins, Scott <Jenkins.Scott@epa.gov>
Subject: Approach for calculating CPP benefit per-ton estimates

Deliberative Process / Ex. 5

Neal Fann
Health and Environmental Impacts Division
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
109 TW Alexander Drive (C539-07)

Research Triangle Park, NC 27711
Phone: (919) 541-0209

Message

From: Wayland, Robertj [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=D490F5A1CD21498384C72C7AC7076967-RWAYLAND]
Sent: 9/18/2017 6:22:46 PM
To: Chan, Elizabeth [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8c2d189c5ca846a4b77b094a4e5b18db-Chan, Eliza]; Fann, Neal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b040a0d5552c40d3a795855b5845c5b4-NFANN]
CC: Coffman, Evan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bb25c67e3d4743d4802b9fe01f909d54-Coffman, Ev]
Subject: RE: CPP emissions

Deliberative Process / Ex. 5

Robert J. Wayland, Ph.D. | Leader (Acting) | Risk & Benefits Group | Health & Environmental Impacts Division | Mail Code -- C539-07 |
Office of Air Quality Planning & Standards | U.S. Environmental Protection Agency | Research Triangle Park, NC 27711 |
Desk: 919-541-1045 | Cell: 919-306-2290 | Fax: 919-541-5315 |

Note: Positions or views expressed here do not represent official EPA policy. Interagency Deliberative and Confidential

From: Chan, Elizabeth
Sent: Monday, September 18, 2017 2:08 PM
To: Fann, Neal <Fann.Neal@epa.gov>
Cc: Wayland, Robertj <Wayland.Robertj@epa.gov>
Subject: RE: CPP emissions

Alex will send them in the next hour or so

Best,
Elizabeth

From: Fann, Neal
Sent: Monday, September 18, 2017 1:57 PM
To: Chan, Elizabeth <Chan.Elizabeth@epa.gov>
Cc: Wayland, Robertj <Wayland.Robertj@epa.gov>
Subject: CPP emissions

Deliberative Process / Ex. 5

Here is what I was hoping you could help me track down:

- The annual SO₂, annual NO_x and summer season NO_x reduced for the year 2025 modeled proposal scenario in each state
- The annual SO₂, annual NO_x and summer season NO_x reduced for the years 2020, 2025 and 2030 for the promulgated rule in each state

I think that's it for now.

Thanks for your help!

-Neal

Neal Fann
Health and Environmental Impacts Division
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
109 TW Alexander Drive (C539-07)
Research Triangle Park, NC 27711
Phone: (919) 541-0209

Message

From: Fann, Neal [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B040A0D5552C40D3A795855B5845C5B4-NFANN]
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To: Kamal, Ali [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d4d69c4ba6164976bd8f340c77065f95-Kamal, Ali]; Chan, Elizabeth [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8c2d189c5ca846a4b77b094a4e5b18db-Chan, Eliza]; Coffman, Evan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bb25c67e3d4743d4802b9fe01f909d54-Coffman, Ev]
CC: Davidson, Ken [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d2e266ba15be4fa3b51faa9c7ad27d02-KDAVID04]; Jenkins, Scott [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b9f9532461ea48a598a84169f7f6ee12-SJENKI04]
Subject: Approach for calculating CPP benefit per-ton estimates

Hi all,

In advance of our meeting this Thursday morning with Erika to discuss our approach for estimating the foregone benefits of the CPP rescission, I've developed this short memo: **Deliberative Process / Ex. 5**

Deliberative Process / Ex. 5

Neal Fann
Health and Environmental Impacts Division
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
109 TW Alexander Drive (C539-07)
Research Triangle Park, NC 27711
Phone: (919) 541-0209

Message

From: Fann, Neal [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B040A0D5552C40D3A795855B5845C5B4-NFANN]
Sent: 8/28/2017 7:47:29 PM
To: Kamal, Ali [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d4d69c4ba6164976bd8f340c77065f95-Kamal, Ali]; Chan, Elizabeth [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8c2d189c5ca846a4b77b094a4e5b18db-Chan, Eliza]; Coffman, Evan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bb25c67e3d4743d4802b9fe01f909d54-Coffman, Ev]
CC: Sasser, Erika [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=477638fe84004800bdf8e62fe3cafc8-ESASSER]; Hetes, Bob [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4547e0bdf9145c3af6ff8e3556222b7-Hetes, Bob]
Subject: Clean Power Plan benefits analysis
Attachments: draft_interagency_review_response_timeline_082517.docx

Hi benefits team,

We've been asked to propose an approach for quantifying the foregone PM_{2.5} and ozone-related benefits of rescinding the Clean Power Plan.

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Overall timing of tasks for revised proposal RIA*

Task	Week								
	1	2	3	4	5	6	7	8	9
Deliberative Process / Ex. 5									

Deliberative Process / Ex. 5

.....
Neal Fann

Health and Environmental Impacts Division

Office of Air Quality Planning and Standards

U.S. Environmental Protection Agency

109 TW Alexander Drive (C539-07)

Research Triangle Park, NC 27711

Phone: (919) 541-0209

Message

From: Fann, Neal [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B040A0D5552C40D3A795855B5845C5B4-NFANN]
Sent: 9/5/2017 7:19:24 PM
To: Wayland, Robertj [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d490f5a1cd21498384c72c7ac7076967-RWAYLAND]; Sasser, Erika [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=477638fe84004800bfd8e62fe3cafc8-ESASSER]
CC: Coffman, Evan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bb25c67e3d4743d4802b9fe01f909d54-Coffman, Ev]; Chan, Elizabeth [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8c2d189c5ca846a4b77b094a4e5b18db-Chan, Eliza]
Subject: Benefits Approach for CPP Repeal RIA

Erika,

I'm writing to follow up on our meeting last Thursday. Linked [here](#) you'll find an updated version of the "Calculating a Benefit Per-Ton and Lowest Measured Level Figure for the CPP" document.

Deliberative Process / Ex. 5

From: Wayland, Robertj
Sent: Saturday, September 02, 2017 11:08 AM
To: Fann, Neal <Fann.Neal@epa.gov>; Sasser, Erika <Sasser.Erika@epa.gov>
Subject: Re: Benefits Approach for CPP Repeal RIA - Room C500A

Deliberative Process / Ex. 5

thanx!

bob

Robert J. Wayland, Ph.D.

U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Sector Policies and Programs Division
Measurement Policy Group
Mail Code D243-05
Research Triangle Park, North Carolina 27709

Office: (919) 541-1045

Fax: (919) 541-3207

Email: wayland.robertj@epa.gov

DRAFT/Deliberative Document - FOIA EXEMPT

From: Fann, Neal

Sent: Thursday, August 31, 2017 5:40 PM

To: Wayland, Robertj; Sasser, Erika

Subject: Re: Benefits Approach for CPP Repeal RIA - Room C500A

Deliberative Process / Ex. 5

From: Wayland, Robertj

Sent: Thursday, August 31, 2017 5:21:49 PM

To: Sasser, Erika

Cc: Fann, Neal

Subject: RE: Benefits Approach for CPP Repeal RIA - Room C500A

Deliberative Process / Ex. 5

Note: Positions or views expressed here do not represent official EPA policy. Interagency Deliberative and Confidential

From: Sasser, Erika

Sent: Thursday, August 31, 2017 5:13 PM

To: Fann, Neal <Fann.Neal@epa.gov>; Kamal, Ali <Kamal.Ali@epa.gov>; Hetes, Bob <Hetes.Bob@epa.gov>; Coffman, Evan <Coffman.Evan@epa.gov>; Chan, Elizabeth <Chan.Elizabeth@epa.gov>; Jenkins, Scott <Jenkins.Scott@epa.gov>

Cc: Weatherhead, Darryl <Weatherhead.Darryl@epa.gov>; Macpherson, Alex <Macpherson.Alex@epa.gov>; Wayland, Robertj <Wayland.Robertj@epa.gov>

Subject: RE: Benefits Approach for CPP Repeal RIA - Room C500A

Deliberative Process / Ex. 5

From: Fann, Neal

Sent: Thursday, August 31, 2017 2:39 PM

To: Sasser, Erika <Sasser.Erika@epa.gov>; Kamal, Ali <Kamal.Ali@epa.gov>; Hetes, Bob <Hetes.Bob@epa.gov>; Coffman, Evan <Coffman.Evan@epa.gov>; Chan, Elizabeth <Chan.Elizabeth@epa.gov>; Jenkins, Scott <Jenkins.Scott@epa.gov>

Cc: Weatherhead, Darryl <Weatherhead.Darryl@epa.gov>; Macpherson, Alex <Macpherson.Alex@epa.gov>; Wayland, Robertj <Wayland.Robertj@epa.gov>

Subject: RE: Benefits Approach for CPP Repeal RIA - Room C500A

Hi all,

Thanks for a productive meeting this morning. I wanted to be sure that the benefits team is clear regarding next steps:

Deliberative Process / Ex. 5

Thanks,
Neal

-----Original Appointment-----

From: Sasser, Erika

Sent: Tuesday, August 29, 2017 10:06 AM

To: Sasser, Erika; Fann, Neal; Kamal, Ali; Hetes, Bob; Coffman, Evan; Chan, Elizabeth; Jenkins, Scott

Cc: Weatherhead, Darryl; Macpherson, Alex; Wayland, Robertj

Subject: Benefits Approach for CPP Repeal RIA - Room C500A

When: Thursday, August 31, 2017 11:00 AM-11:30 AM (UTC-05:00) Eastern Time (US & Canada).

Where: RTP-C500A-Max40/RTP-Bldg-C

Message

From: Fann, Neal [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B040A0D5552C40D3A795855B5845C5B4-NFANN]
Sent: 8/28/2018 9:56:41 PM
To: Wayland, Robertj [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d490f5a1cd21498384c72c7ac7076967-RWAYLAND]; Keaveny, Brian [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=13ac837699a94966adb381b8c7c380f9-Keaveny, Br]
CC: Weatherhead, Darryl [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4889ece1ce1541a0a053ecc16b4a1131-Weatherhead, Darryl]; Chan, Elizabeth [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8c2d189c5ca846a4b77b094a4e5b18db-Chan, Eliza]
Subject: RE: Spreadsheet for docket
Attachments: Copy of Results for RIA Health Co-Benefit Tables.xlsx

Here you go!

From: Wayland, Robertj
Sent: Tuesday, August 28, 2018 5:48 PM
To: Keaveny, Brian <Keaveny.Brian@epa.gov>; Fann, Neal <Fann.Neal@epa.gov>
Cc: Weatherhead, Darryl <Weatherhead.Darryl@epa.gov>; Chan, Elizabeth <Chan.Elizabeth@epa.gov>
Subject: RE: Spreadsheet for docket

Deliberative Process / Ex. 5

Robert J. Wayland, Ph.D. | Leader (Acting) | Risk & Benefits Group | Health & Environmental Impacts Division | Mail Code – C539-07 |
Office of Air Quality Planning & Standards | U.S. Environmental Protection Agency | Research Triangle Park, NC 27711 |
Desk: 919-541-1045 | Cell: 919-306-2290 | Fax: 919-541-5315 |

Note: Positions or views expressed here do not represent official EPA policy. Interagency Deliberative and Confidential

From: Keaveny, Brian
Sent: Tuesday, August 28, 2018 5:41 PM
To: Fann, Neal <Fann.Neal@epa.gov>
Cc: Wayland, Robertj <Wayland.Robertj@epa.gov>; Weatherhead, Darryl <Weatherhead.Darryl@epa.gov>
Subject: RE: Spreadsheet for docket

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

From: Fann, Neal
Sent: Thursday, August 23, 2018 2:42 PM
To: Keaveny, Brian <Keaveny.Brian@epa.gov>
Subject: Spreadsheet for docket

Brian,

Please see attached.

Deliberative Process / Ex. 5

Thanks,
Neal

Neal Fann
Health and Environmental Impacts Division
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
109 TW Alexander Drive (C539-07)
Research Triangle Park, NC 27711
Phone: (919) 541-0209

Message

From: Fann, Neal [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B040A0D5552C40D3A795855B5845C5B4-NFANN]
Sent: 9/29/2017 12:26:57 PM
To: Sasser, Erika [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=477638fe84004800bfd8e62fe3cafc8-ESASSER]; Macpherson, Alex [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8bbdd3b262a14ab5ae26c5a745337667-Macpherson, Alex]; Keaveny, Brian [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=13ac837699a94966adb381b8c7c380f9-Keaveny, Br]
CC: Chan, Elizabeth [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8c2d189c5ca846a4b77b094a4e5b18db-Chan, Eliza]; Wayland, Robertj [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d490f5a1cd21498384c72c7ac7076967-RWAYLAND]; Coffman, Evan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=bb25c67e3d4743d4802b9fe01f909d54-Coffman, Ev]
Subject: Net benefits figures
Attachments: Net Benefit Histogram.png; 2030 Net Benefits.png; 2025 Net Benefits.png; 2020 Net Benefits.png; All Net Benefits.png

Hi all,

Please see attached figures that Elizabeth and Evan developed, which summarize the net benefits.

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

-Neal

From: Chan, Elizabeth
Sent: Thursday, September 28, 2017 4:30 PM
To: Fann, Neal <Fann.Neal@epa.gov>; Coffman, Evan <Coffman.Evan@epa.gov>
Cc: Wayland, Robertj <Wayland.Robertj@epa.gov>
Subject: RE: net_benefit_comps.xlsx

Deliberative Process / Ex. 5

The images you requested **Deliberative Process / Ex. 5** are attached. Let me know if you'd like any changes made, or if you'd prefer a screenshot of the images (which may increase the resolution).

Best,
Elizabeth

From: Fann, Neal
Sent: Thursday, September 28, 2017 1:43 PM
To: Chan, Elizabeth <Chan.Elizabeth@epa.gov>; Coffman, Evan <Coffman.Evan@epa.gov>
Cc: Wayland, Robertj <Wayland.Robertj@epa.gov>
Subject: FW: net_benefit_comps.xlsx

Deliberative Process / Ex. 5

with this!

Thanks again for your help

From: Macpherson, Alex
Sent: Thursday, September 28, 2017 1:36 PM
To: Fann, Neal <Fann.Neal@epa.gov>
Subject: net_benefit_comps.xlsx

Message

From: Ragnauth, Shaun [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=13085367E78B4DD49CEF8F4F3CA5BA65-SRAGNAUT]
Sent: 9/27/2017 4:51:55 PM
To: Keaveny, Brian [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=13ac837699a94966adb381b8c7c380f9-Keaveny, Br]
CC: Macpherson, Alex [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8bbdd3b262a14ab5ae26c5a745337667-Macpherson, Alex]
Subject: RE: need additional numbers for RIA
Attachments: Foregone benefits -Docket-092717.xlsx

Brian,
Attached is a new clean version with the document links removed.

Thanks,
Shaun

From: Keaveny, Brian
Sent: Tuesday, September 26, 2017 7:00 PM
To: Ragnauth, Shaun <Ragnauth.Shaun@epa.gov>
Cc: Macpherson, Alex <Macpherson.Alex@epa.gov>
Subject: RE: need additional numbers for RIA
Importance: High

Hi Shaun,

As you know, we're wrapping up the RIA for interagency review to be sent out Wednesday (tomorrow). As part of this, we need to also send our associated workbooks, including the *Forgone SC-CO2 Benefits* workbook that you sent me recently (including the AEO2017 parts).

Whatever I send tomorrow will likely end up in the docket. Do you want to do any file cleanup or formatting changes to the version you sent me most recently?

If so, please send it to me by 1:00 pm on Wednesday. I'm happy to discuss tomorrow morning if it would be helpful.

Thanks for your help,

- Brian

Brian Keaveny, Economist
Air Economics Group, HEID/OAQPS
U.S. EPA Office of Air and Radiation
MD C439-02, 109 TW Alexander Dr., RTP, NC 27711
Phone: 919-541-5238

From: Keaveny, Brian
Sent: Tuesday, September 19, 2017 2:36 PM
To: Ragnauth, Shaun <Ragnauth.Shaun@epa.gov>
Cc: Macpherson, Alex <Macpherson.Alex@epa.gov>
Subject: RE: need additional numbers for RIA

Hi Shaun,

Great, thanks for adding to this workbook and the addendum document.

- Brian

From: Ragnauth, Shaun

Sent: Tuesday, September 19, 2017 2:06 PM

To: Keaveny, Brian <Keaveny.Brian@epa.gov>

Cc: Macpherson, Alex <Macpherson.Alex@epa.gov>

Subject: RE: need additional numbers for RIA

Brian,

Attached is the latest version of the forgone benefits spreadsheet.

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Thanks,
Shaun

From: Keaveny, Brian

Sent: Friday, September 15, 2017 11:41 AM

To: Ragnauth, Shaun <Ragnauth.Shaun@epa.gov>

Cc: Macpherson, Alex <Macpherson.Alex@epa.gov>

Subject: need additional numbers for RIA

Deliberative Process / Ex. 5

Thanks,
- Brian

Brian Keaveny, Economist

Air Economics Group, HEID/OAQPS
U.S. EPA Office of Air and Radiation
MD C439-02, 109 TW Alexander Dr., RTP, NC 27711
Phone: 919-541-5238

From: Keaveny, Brian
Sent: Wednesday, September 13, 2017 4:36 PM
To: Ragnauth, Shaun <Ragnauth.Shaun@epa.gov>
Subject: RE: CPP SC-CO2 comments

Thanks Shaun.

- Brian

From: Ragnauth, Shaun
Sent: Wednesday, September 13, 2017 4:21 PM
To: Keaveny, Brian <Keaveny.Brian@epa.gov>
Subject: RE: CPP SC-CO2 comments

Brian,
Attached is the updated workbook. The updated tables are on the 'tables 2017 RIA' tab.

Thanks,
Shaun

From: Keaveny, Brian
Sent: Wednesday, September 13, 2017 4:12 PM
To: Ragnauth, Shaun <Ragnauth.Shaun@epa.gov>
Cc: Macpherson, Alex <Macpherson.Alex@epa.gov>
Subject: RE: CPP SC-CO2 comments

Thanks Shaun. Please also send me the updated SC-CO2 workbook that has the numbers you've just put in the RIA.

Deliberative Process / Ex. 5

Thanks,
- Brian

From: Ragnauth, Shaun
Sent: Wednesday, September 13, 2017 3:57 PM
To: Keaveny, Brian <Keaveny.Brian@epa.gov>
Cc: Macpherson, Alex <Macpherson.Alex@epa.gov>
Subject: RE: CPP SC-CO2 comments

Deliberative Process / Ex. 5

From: Keaveny, Brian
Sent: Monday, September 11, 2017 4:46 PM
To: Ragnauth, Shaun <Ragnauth.Shaun@epa.gov>
Cc: Macpherson, Alex <Macpherson.Alex@epa.gov>
Subject: RE: CPP SC-CO2 comments

Thanks Shaun.

- Brian

From: Ragnauth, Shaun
Sent: Monday, September 11, 2017 4:08 PM
To: Keaveny, Brian <Keaveny.Brian@epa.gov>
Cc: Macpherson, Alex <Macpherson.Alex@epa.gov>
Subject: RE: CPP SC-CO2 comments

Deliberative Process / Ex. 5

From: Keaveny, Brian
Sent: Monday, September 11, 2017 1:29 PM
To: Ragnauth, Shaun <Ragnauth.Shaun@epa.gov>
Cc: Macpherson, Alex <Macpherson.Alex@epa.gov>
Subject: RE: CPP SC-CO2 comments

Great, thanks Shaun.

Deliberative Process / Ex. 5

Of course, I'd be happy to discuss this.

Thanks,
- Brian

Brian Keaveny, Economist

Air Economics Group, HEID/OAQPS
U.S. EPA Office of Air and Radiation
MD C439-02, 109 TW Alexander Dr., RTP, NC 27711
Phone: 919-541-5238

From: Ragnauth, Shaun
Sent: Monday, September 11, 2017 12:22 PM
To: Keaveny, Brian <Keaveny.Brian@epa.gov>
Cc: Macpherson, Alex <Macpherson.Alex@epa.gov>
Subject: RE: CPP SC-CO2 comments

Hi Brian,
That's no problem. I'm working with Elizabeth Kopits to address these comments.

Thanks,
Shaun

From: Keaveny, Brian
Sent: Thursday, September 07, 2017 6:15 PM
To: Ragnauth, Shaun <Ragnauth.Shaun@epa.gov>
Cc: Macpherson, Alex <Macpherson.Alex@epa.gov>
Subject: CPP SC-CO2 comments

Hi Shaun,

I just wanted to follow up on the CPP call we had yesterday

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

I'd be happy to discuss on Monday if it'd be helpful.

Thanks,
- Brian

Brian Keaveny, Economist
Air Economics Group, HEID/OAQPS
U.S. EPA Office of Air and Radiation
MD C439-02, 109 TW Alexander Dr., RTP, NC 27711
Phone: 919-541-5238

Message

From: Wayland, Robertj [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=D490F5A1CD21498384C72C7AC7076967-RWAYLAND]
Sent: 4/11/2018 9:23:05 PM
To: Fann, Neal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b040a0d5552c40d3a795855b5845c5b4-NFANN]; Keaveny, Brian [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=13ac837699a94966adb381b8c7c380f9-Keaveny, Br]; Simon, Heather [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a777b3ab435946d399a5ac22de5de197-Simon, Heather]
CC: Sasser, Erika [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=477638fe84004800bdf8e62fe3cafc8-ESASSER]; Weatherhead, Darryl [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4889ece1ce1541a0a053ecc16b4a1131-Weatherhead, Darryl]
Subject: RE: Preliminary estimate of CPP replacement foregone benefits

Deliberative Process / Ex. 5

Bob

Robert J. Wayland, Ph.D. | Leader (Acting) | Risk & Benefits Group | Health & Environmental Impacts Division | Mail Code -- C539-07 |
Office of Air Quality Planning & Standards | U.S. Environmental Protection Agency | Research Triangle Park, NC 27711 |
Desk: 919-541-1045 | Cell: 919-306-2290 | Fax: 919-541-5315 |

Note: Positions or views expressed here do not represent official EPA policy. Interagency Deliberative and Confidential

From: Fann, Neal
Sent: Wednesday, April 11, 2018 5:14 PM
To: Keaveny, Brian <Keaveny.Brian@epa.gov>; Simon, Heather <Simon.Heather@epa.gov>
Cc: Sasser, Erika <Sasser.Erika@epa.gov>; Wayland, Robertj <Wayland.Robertj@epa.gov>; Weatherhead, Darryl <Weatherhead.Darryl@epa.gov>
Subject: RE: Preliminary estimate of CPP replacement foregone benefits

Deliberative Process / Ex. 5

From: Keaveny, Brian
Sent: Wednesday, April 11, 2018 4:39 PM
To: Fann, Neal <Fann.Neal@epa.gov>; Simon, Heather <Simon.Heather@epa.gov>
Cc: Sasser, Erika <Sasser.Erika@epa.gov>; Wayland, Robertj <Wayland.Robertj@epa.gov>; Weatherhead, Darryl

<Weatherhead.Darryl@epa.gov>

Subject: RE: Preliminary estimate of CPP replacement foregone benefits

Thanks a bunch Neal and Heather! This is helpful and interesting.

Deliberative Process / Ex. 5

Thanks,
- Brian

From: Fann, Neal

Sent: Wednesday, April 11, 2018 4:10 PM

To: Sasser, Erika <Sasser.Erika@epa.gov>; Wayland, Robertj <Wayland.Robertj@epa.gov>; Weatherhead, Darryl <Weatherhead.Darryl@epa.gov>

Cc: Keaveny, Brian <Keaveny.Brian@epa.gov>; Simon, Heather <Simon.Heather@epa.gov>

Subject: Preliminary estimate of CPP replacement foregone benefits

Hi all,

I wanted to share with you the preliminary estimates of the foregone PM_{2.5} and ozone-related benefits of the CPP replacement policies. These have received a first round of QA from me and Heather, but of course could change.

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Please let me know if you have any questions.

Thanks,
Neal

PM_{2.5} & Ozone

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Keaveny, Brian [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=13AC837699A94966ADB381B8C7C380F9-KEAVENY, BR]
Sent: 4/10/2018 1:52:33 PM
To: Weatherhead, Darryl [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4889ece1ce1541a0a053ecc16b4a1131-Weatherhead, Darryl]; Wayland, Robertj [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d490f5a1cd21498384c72c7ac7076967-RWAYLAND]; Fann, Neal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b040a0d5552c40d3a795855b5845c5b4-NFANN]; Simon, Heather [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=a777b3ab435946d399a5ac22de5de197-Simon, Heather]; Possiel, Norm [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=89e1e9284df646adaf76cc6bd02aceb6-NPOSSIEL]
CC: Erika Sasser (Sasser.Erika@epa.gov) [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=477638fe84004800bdf8e62fe3cafc8-ESASSER]
Subject: Materials for the 10:00 Bill Wehrum briefing today
Attachments: Potential RIA Scenarios 4-9-18_v3.pptx; CAA 111 BSER Briefing 04102018 (003).docx

FYI, here are the materials for the 10 AM Bill Wehrum briefing today on the 111 rules.

Best regards,
- Brian

Message

From: Keaveny, Brian [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=13AC837699A94966ADB381B8C7C380F9-KEAVENY, BR]
Sent: 4/30/2018 6:13:47 PM
To: Ragnauth, Shaun [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=13085367e78b4dd49cef8f4f3ca5ba65-SRAGNAUT]
Subject: RE: annual climate benefit estimates for 2025-2037

Great! Thanks Shaun.

- Brian

From: Ragnauth, Shaun
Sent: Monday, April 30, 2018 1:52 PM
To: Keaveny, Brian <Keaveny.Brian@epa.gov>
Subject: RE: annual climate benefit estimates for 2025-2037

Hi Brian,

That's no problem, I can get it to you by COB tomorrow.

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

I'll get started on this later today and will check in tomorrow morning if I have any questions.

Thanks,
Shaun

From: Keaveny, Brian
Sent: Monday, April 30, 2018 12:03 PM
To: Ragnauth, Shaun <Ragnauth.Shaun@epa.gov>
Subject: annual climate benefit estimates for 2025-2037

Hi Shaun,

Deliberative Process / Ex. 5

I'm happy to chat today if it'd be helpful. Thanks!

- Brian

Brian Keaveny, Economist

Air Economics Group, HEID/OAQPS
U.S. EPA Office of Air and Radiation
MD C439-02, 109 TW Alexander Dr., RTP, NC 27711
Phone: 919-541-5238

Message

From: Keaveny, Brian [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=13AC837699A94966ADB381B8C7C380F9-KEAVENY, BR]
Sent: 6/8/2018 6:40:57 PM
To: Fann, Neal [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b040a0d5552c40d3a795855b5845c5b4-NFANN]
CC: Weatherhead, Darryl [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4889ece1ce1541a0a053ecc16b4a1131-Weatherhead, Darryl]; Wayland, Robertj [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d490f5a1cd21498384c72c7ac7076967-RWAYLAND]
Subject: RE: For your review: new CPP benefits table format

Thanks a bunch Neal. I really appreciate all the effort to fit in the additional scenario!

Deliberative Process / Ex. 5

Here my other suggestions:

Deliberative Process / Ex. 5

Thanks again. I'm happy to discuss any of this if it'd be helpful.
- Brian

From: Fann, Neal
Sent: Friday, June 08, 2018 11:42 AM
To: Keaveny, Brian <Keaveny.Brian@epa.gov>; Weatherhead, Darryl <Weatherhead.Darryl@epa.gov>; Wayland, Robertj <Wayland.Robertj@epa.gov>
Subject: For your review: new CPP benefits table format

Hi all,

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Neal Fann
Health and Environmental Impacts Division
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
109 TW Alexander Drive (C539-07)
Research Triangle Park, NC 27711
Phone: (919) 541-0209

Message

From: Keaveny, Brian [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=13AC837699A94966ADB381B8C7C380F9-KEAVENY, BR]
Sent: 8/10/2017 10:31:34 PM
To: Macpherson, Alex [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8bbdd3b262a14ab5ae26c5a745337667-Macpherson, Alex]
Subject: FW: CPP RIA Options
Attachments: CPPria_analytical_options_081017.docx

FYI, this is the memo version used in the briefing today.

- Brian

From: Weatherhead, Darryl
Sent: Thursday, August 10, 2017 10:50 AM
To: Sasser, Erika <Sasser.Erika@epa.gov>
Cc: Keaveny, Brian <Keaveny.Brian@epa.gov>
Subject: CPP RIA Options

Here it is.

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